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DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR CONSTRUCTION OF WASTEWATER FACILITIES

Environmental Protection Agency
Dallas, Texas

February 1972

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DRAFT

ENVIRONMENTAL IMPACT STATEMENT

FOR

CONSTRUCTION OF WASTEWATER FACILITIES

RED OAK, TEXAS
WPC-TEX-533

IMPACT STATEMENT NUMBER 7103

FEB 25 1972

PREPARED BY
AIR AND WATER PROGRAMS DIVISION, REGION VI
ENVIRONMENTAL PROTECTION AGENCY
DALLAS, TEXAS

PRICES SUBJECT TO CHANGE

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APPROVED BY:

Arthur W. Busch
Regional Administrator
February 25, 1972

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SUMMARY

(X) Draft Environmental Statement
( ) Final Environmental Statement

Environmental Protection Agency
Region VI, Air and Water Programs Division
Dallas, Texas

1. Name of Action
Administrative Action (X)
Legislative Action ( )

2. The proposed action consists of federal grant assistance as authorized by Section 8 of the Federal Water Pollution Control Act. The City of Red Oak, Ellis County, Texas has applied for federal funds to aid in constructing a complete wastewater treatment system. The portions of this system eligible for federal funds include the wastewater interceptors and treatment plant. The treatment plant will employ an extended aeration process including pretreatment grit removal, flow measurement, and effluent chlorination. The treatment process will take place in an oxidation ditch followed in series by a clarifier. The biologically active solids from the aeration unit will be collected in the clarifier and returned to the oxidation ditch to aid in stabilizing the raw sewage. Sludge drying beds will be constructed on the site with ample volume to handle clarifier sludge accumulations and waste sludge from the treatment process.

3. The total project includes all facilities necessary for the collection, transportation, and treatment of wastewater

generated in the City of Red Oak, Texas. Discharge of the treated effluent will be to an unnamed tributary of Red Oak Creek. The project is designed to eliminate the septic tanks that are presently contributing to pollution of surface water and creating potential health hazards in the area. The alternatives being considered are intended to improve the health and welfare of the people residing within the city while enhancing the water quality of Red Oak Creek and its tributaries. The final selection of the most feasible alternate is contingent on thorough evaluation of both economic and ecological aspects to assure that the project concepts will minimize adverse effects on the human environment without unduly burdening the citizens.

4. The alternatives being considered include:

a. Grant rejection - The project might be financed without federal grant aid if federal requirements will impose total project costs that are not within funds available to the City of Red Oak. The project would be designed to meet the requirements of the Waste Control Order issued by the Texas Water Quality Board and consistent with design criteria established by that agency.

b. Provide advanced waste treatment facilities to supplement effective secondary treatment, further improving the quality of the effluent to a degree that will exceed current criteria formulated by the Texas Water

Quality Board.

c) Construct an interceptor to transport waste water to the Trinity River Authority's regional treatment facility.

d) Total retention ponds sufficiently large to preclude effluent discharge to a receiving stream.

e) Irrigate a privately owned golf course with the treated effluent, thus precluding discharge to a receiving stream.

f) Hauling raw waste by truck to a regional treatment facility.

g) Discharge of treated effluent to a receiving stream with lesser aesthetic value.

h) A "no action" concept of continued use of septic tanks.

5. List of Federal, state, and local agencies from which comments have been solicited.

Federal Agencies

Forest Service

Bureau of Outdoor Recreation

Army Corps of Engineers

Soil Conservation Service

Geological Survey

Department of Housing & Urban Development

Office of Economic Opportunity

Department of Health, Education & Welfare

State Agencies

Office of the Governor

Texas Air Control Board

State Department of Health

Texas Industrial Commission

Texas Parks & Wildlife Department

Texas Water Quality Board

Texas Highway Department

Railroad Commission of Texas

Texas Water Rights Commission

Texas State Historical Survey Committee

Department of Agriculture

General Land Office

State Agencies

Texas Animal Health Commission

Forest Service

State Soil & Water Conservation Board

Texas Tourist Development Agency

Texas Water Development Board

Association of Texas Soil & Water Conservation Districts

Texas Conservation Council, Inc.

Bureau of Economic Geology

Texas Council for Wildlife Protection

Texas Industry Association

Individuals and Local Agencies

Mr. Patrick D. dePamphilis

Mrs. Ed Prude

Honorable F.P. McCalman, Mayor

Robert N. Tharp, Regional Manager, Trinity River Authority

North Central Texas Council of Governments

Honorable Milton Hartsfield

David Pearis, M.D.

Mr. Don Shields

ENVIRONMENTAL IMPACT STATEMENT

1. Description of the Proposed Action

The City of Red Oak, Ellis County, Texas, located approximately 23 miles south of Dallas (Exhibit No. 1), plans to construct a wastewater collection and treatment system to serve its residents. The city's proposal calls for a complete collection system, interceptors, and extended aeration treatment plant. Discharge of the treated effluent will be to a tributary of Red Oak Creek. The facilities will be designed for 2000 population equivalent expected in the late 1980's, but initial service will be to the approximately 800 current residents of Red Oak. All of the proposed facilities will lie in or near the developed areas of the City of Red Oak. (Exhibit No. 2)

At present, the City has no municipal sewerage facilities. A preliminary plan for the proposed system was prepared by the city's consulting engineers in 1958, but the project was found to be cost prohibitive at that time. The present proposal, based on a Red Oak Creek discharge, has been found to be financially acceptable to the City. The project has been reviewed and approved by the Texas Water Quality Board, Texas State Department of Health and the North Central Texas Council of Governments. Documents from these agencies are included in this statement. These documents refer to an oxidation ditch - stabilization pond system which was originally proposed by the City. Since these agencies approved a pond system, it is expected that they will approve a clarifier in

in place of the ponds. Review of the plans by the Environmental Protection Agency, following the grant application, indicated a need for an Environmental Impact Statement to respond to the objections of some downstream landowners. This review studied the design, economics, and ecological aspects of the project and initially concluded that total retention or reuse would be the best interim solution pending connection to a regional system when financially practical. These conclusions were then made conditions of the $55,550 Grant Offer made on 30 June 1971. EPA representatives further recommended using plant effluent to irrigate a nearby golf course as an effluent reuse alternative.

The following is an excerpt from a statement presented at the Public Hearing held in Duncanville, Texas, on October 6, 1971. This statement was prepared to clarify the position of the Environmental Protection Agency on the Conditions of the Grant Offer.

> Although the grant offer was made contingent on these conditions, additional alternatives may prove feasible for further consideration. However, the City of Red Oak will be responsible for justifying any other alternative with due consideration given to economics and the effect on the human environment.
>
> The Environmental Protection Agency will give approval to any such proposal that is judged to be the best course of action consistent with national environmental goals.

In accordance with this statement the Environmental Protection Agency and the City's engineers conducted a more detailed study of the irrigation system proposal and concluded

that this alternative was ecologically and financially impractical. A review of all alternatives concluded that the City's proposal was the most practical and the reuse-retention condition was dropped from the Grant Offer.

The City's existing treatment facilities are comprised of septic tanks owned and operated by the residents of the city. Due, in part, to the poor permeability of the calcareous clay soil of the region, these facilities are hydraulically overloaded. Sewage pools, created by upward seepage of sewage have been reported in several sections of the city.

In addition, these pools represent a potentially serious public health hazard. Representatives of the EPA and the Texas State Department of Health have observed these conditions on several occasions and a copy of the Health Department report is given in Exhibit No. 12.

Among the most seriously affected areas of the City are the schools. This daily concentration of people has taxed the soil system's limited absorption capacity and overflows are evident. To help alleviate this condition, and the odors associated with it, the Red Oak Independent School District has recently added 1000 feet of lateral lines to the school's drain fields. This is only a temporary solution, however, since the schools are expanding rapidly as evidenced by a proposed high school addition.

The aesthetic value and sanitary quality of Red Oak Creek is also endangered by the septic tank seepage occurring in the

City. Runoff flushes these pools and carries the sewage to the creek where it may pose a threat to the health of anyone using the creek for recreational or agricultural purposes. Increased seepage could have a significantly degrading effect on the stream, producing an aesthetically unpleasant change in the area.

II. Environmental Impact of the Proposed Action

The project, as proposed, will affect the environment in four specific areas:

1. ecological disruption during construction;
2. land-use;
3. population growth;
4. effect of effluent on Red Oak Creek.

A. Ecological disruption, as a result of construction, is a problem common to all wastewater facilities projects. Installation of the collection system in the developed areas of the City will have little or no ecological impact other than the short-term impact of being unsightly and inconvenient to the local residents. Construction of the interceptor will be along a route through undeveloped land. Any damage done along this line will be short-term since no permanent, above ground facilities will be needed and the restorative provisions of the contract specifications will return the area to near pre-construction conditions.

In most cases, construction of a wastewater treatment plant will have a long-term ecological impact. Removal of trees and shrubs, site excavation and road building, the noise of construction equipment, and the installation of numerous permanent

structures will drive off most animal life and destroy the natural setting of the area.

The proposed Red Oak plant, however, is part of an interim plan and while construction will result in the condition mentioned previously, removal of the plant's structures followed by proper landscaping will return the site to its natural state. For this reason, the overall impact of the plant on ecological development in the area of the site can be regarded as short-term.

B. Land use changes, like the ecological disruption that results from construction, can be regarded as having only a short-term environmental impact. In the developed areas of the City, no land use changes are anticipated since the sewers will be designed and built to serve the land as it is presently used. The undeveloped lands adjacent to the interceptors will be limited in development by the location of the line; on the other hand, this same line will stimulate development of the adjacent land. The land adjacent to the treatment plant will be adversely affected by the presence of the facilities, since the existence of a plant is aesthetically objectionable to landowners and developers. However, these facilities are regarded as an interim solution and should be closed before extensive development begins in the general area of the plant.

C. The population growth trend, like land development, will be beneficially stimulated by the installation of a sewerage

system. The removal of the aesthetically objectionable seepage will help to improve the City's residential image thus drawing prospective homeowners to the area. Exhibit No. 5 shows a population projection to the year 2,000. It can be seen that the rate of population growth increased after 1962, the year of completion of a major highway (Interstate Highway No. 35E) connecting Red Oak and downtown Dallas. The construction of a sewerage system, combined with the introduction of a modern highway for commuting, will make Red Oak a desirable site for residential development. This development should effect an increase in the population growth rate which may exceed the projection presented in Exhibit No. 5

D. The controversial aspect of this project is its overall effect on the quality of the proposed receiving stream, Red Oak Creek. In considering the overall effect on the stream, four questions must be answered.

1. What is the present quality of the stream?
2. What is the safe assimilative capacity of the stream?
3. How effective is the proposed treatment?
4. How will plant operation affect the effluent quality?

1. What is the present quality of the stream?

In response to the first question, no detailed analysis of the stream's quality is available. Exhibit No. 3 gives the results of two samples analyzed to determine some of the stream's physical and chemical characteristics. As evidenced by these results, the stream appears to be acceptable for most uses.

The apparent good quality of the stream is further evidenced by its varied uses which include swimming, cattle watering, and some reported crop irrigation. In addition, the stream basin's pleasing environs attracts hikers, picnickers, and other groups and individuals who enjoy the stream's natural setting.

One consideration, in regard to present quality, that has not been fully developed is the effect of septic tank seepage on the stream. No analysis of the stream in the Red Oak area has been conducted to determine the degree to which the stream has been contaminated by runoff carrying raw or partially treated wastes from leaking septic tanks. Natural drainage from the City is carried to Red Oak Creek but the strength of the wastes contained in the runoff is unknown. As evidenced by the present quality of the stream, the wastes reaching the stream are apparently insignificant in strength and volume. However, if the City's population continues to grow, this condition may change adversely and visible stream damage will result.

2. What is the safe assimilative capacity of the stream?

As in the previous question, no precise response is possible due to the lack of detailed data on the stream's flow and quality. Exhibit No. 3 gives some indication of the flows in the stream as well as some indication of the stream's assimilative capabilities.

The analysis of the first sample shows the water quality in Red Oak Creek below the discharge from the Cedar Hill treatment plant. This plant consisted of a primary clarifier, trickling filter, and oxidation pond. It produced treated effluent (50,000 gpd) meeting the TWQB 20 mg/l BOD_5 and TSS standards. The plant was phased out in 1970, following connection of the City's collection system to the Trinity River Authority's (TRA) regional facilities. These notes infer that the effluent had a negligible effect on the stream at this rate of flow. Exhibit 3 also shows the results of tests conducted on samples taken at a point below the cattle feed lot located between Red Oak and Rockett. These samples were taken after closing the Cedar Hill plant, and the results infer that, at this rate of flow, the stream is relatively unpolluted.

In addition to the available data, a literature review indicated that, in general, streams with low discharge, shallow flow, high velocity, and areas of riffles, such as Red Oak Creek, will have the highest rates of reaeration. This indicates that the stream should be able to recover quickly from an oxygen sag induced by point loads such as a treatment plant outfall.

During periods of low flow the rate of reaeration will remain high due to the decreased depth of flow. This results in increased turbulence in the areas of riffles which effects an increase in reaeration. In the event natural flow stops (dry spells), natural aeration of the effluent will occur.

This process will keep the flow from becoming septic unless large, deep pools are encountered; a condition which is not expected on Red Oak Creek.

Based on the stream's physical characteristics, the available flow and quality data, and the fact that an upstream treatment plant's effluent had little effect on the stream, it is believed that the stream will be able to assimilate the organic loading from the proposed plant without significant adverse changes in the area.

3. How effective is the proposed treatment?

The City proposes to construct an extended aeration wastewater treatment plant. This process is a modification of the widely used activated sludge process. Exhibit No. 2 shows a diagram of a Hulsman Orbal Activated Sludge Process plant which is one alternative being considered by the City.

The extended aeration process proposed for Red Oak will employ some form of oxidation ditch followed by a clarifier. Raw sewage will be aerated, mixed and retained in the ditch while stabilization of the wastes begins. The wastewater will then be carried to the clarifier where the biologically active floes and any other solids will be settled. This material, along with a portion of the clarifier effluent, will be returned to a point near the head end of the oxidation ditch to seed the raw wastes with active microorganisms and to be recirculated through the plant for additional treatment. Liquid clarifier effluent will be carried to a chlorinator for treatment as prescribed by the State. Following

chlorination, the treated effluent will be discharged to the stream.

The extended aeration process generally includes maximum sludge recirculation techniques. In small plants, such as Red Oak, all of the settled sludge is recirculated. This permits nearly complete biological oxidation of the organic load. In theory, the only solids that will build up in the system, will be the nonbiodegradable residues of the sludge. When sufficient build up has occurred, the solids are drained from the clarifier onto sand beds where it dries in a few days. This wasted sludge will be stable and odorless since it will consist primarily of nonbiodegradable residues from an aerobic treatment system.

In 1960, the U.S. Department of Health, Education and Welfare released the results of a study covering 59 extended aeration treatment plants. This report stated that the plants were averaging 86% BOD_5 removal with minimum operation and maintenance problems.

The City of Forney, Texas is presently operating a 150,000 gpd, extended aeration treatment plant which is removing approximately 91% of the influent BOD_5, producing a clear, inoffensive effluent, and operating without odor or noise nuisances.

Based on the NEW report and the data available from the Forney, Texas treatment plant, it can be concluded that the extended aeration treatment process can effectively produce an acceptable effluent that will meet the TWQB permit standards.

4. How will plant operation affect the effluent quality?

The key factor in effective plant operation is the plant operator. The training and skills of the operator will determine whether the plant will be an asset or a detriment to the community. The degree of training required for plant operators is specified by the TWQB.

The North Central Texas Council of Governments, in conjunction with local, State, and Federal Agencies, and local universities, conducts operation training schools and seminars where operators are familiarized with waste treatment techniques. The accessibility of such schools will make it possible for the Red Oak plant operator to receive an excellent education in plant operation. Thus, the Red Oak plant should not adversely affect the environment due to a lack of operator training.

After considering the apparent quality of the stream, its estimated assimilative capacity, the effectiveness of the proposed process, and availability of operator training, it is assumed that the proposed Red Oak plant will produce an effluent that will not significantly detract from the overall value of Red Oak Creek.

Based on the available information, a final determination of the actual effect of a 20-20 effluent on the stream cannot be made until after the treatment plant is operating. The TWQB will conduct a monitoring program to measure any changes in the quality of the stream due to the effluent. If the

board determines that there is a significant adverse effect, they can require the City to upgrade the facilities to produce a less harmful effluent. This authority is granted under Section (e) of the Standard Provision of the Permit (Exhibit No. 4).

The proposed facilities can be easily upgraded to produce an improved quality effluent; extensive design flexibility is one feature of this type plant. Should the 20-20 standard effluent prove ecologically damaging, the addition of final filters, chemical treatment, or another type of advanced waste treatment would produce an effluent of more acceptable quality. To satisfy the Public Health Department's requirements governing recreational uses of the stream, additional chlorination units may be installed to reduce the bacterial concentration of the effluent. This increased chlorine concentration could have an adverse impact on the stream as discussed in the next section.

Elimination of the septic tanks and installation of a sewerage system would help to conserve water as a natural resource. The present practice of subsurface disposal has resulted in surface pollution and probable contamination of the ground water. Elimination of the septic tank systems would remove these problems and, at the same time, make the treated plant effluent available as surface water for use downstream. The proposed plant would discharge 200,000 gpd (0.31 cfs) as the average daily flow at design capacity. This flow would be negligible during flood conditions.

III. Adverse Impacts Which Cannot be Avoided Should the Proposal be Implemented.

No significant, unavoidable, adverse impacts are expected as a result of this project.

The project's effect on land-use, ecological disruption during construction, and the expected effect of the effluent on the stream have been discussed previously and the impact of each is expected to be negligible and/or short-term.

There are six potentially adverse aspects associated with the proposed treatment plant.

1. Odor production
2. Noise production
3. Insect propagation
4. Build up of organic sediments in the stream
5. Effect of chlorine on the stream
6. Plant shutdown's effect on the stream (future TRA connection).

1. The unpleasant odors associated with treatment plants are the products of anaerobic decomposition. The proposed extended aeration plant will employ aerobic decomposition throughout. Septic odors may result, however, from prolonged electrical power failures, mechanical breakdowns, or excessive sludge build up in the system; all of which are unlikely.

These conditions result in a decrease in aeration which may lead to anaerobic conditions and septic odors. In order to avoid these conditions, a stand-by power supply and spare parts for on-site repair of machines will be required. Proper plant operation should be adequate to avoid excessive solids

build up.

2. The treatment plant will be designed to minimize noise by enclosing or muffling all primary noise producers (motors, pumps, and blowers).

3. Insect propagation is generally confined to areas of standing water. The turbulent conditions of a mechanically aerated oxidation ditch would be unsuited for insect propagation. Any surface dwelling insects or larvae present in the clarifier would pass through the weirs to the chlorination tank where contact with chlorine would destroy them. Liquid sludge in the drying beds would dewater quickly and be removed before insect nesting could become firmly established. For these reasons, no insect nuisance problems are expected due to the plant and no use of insecticides at the plant site should be necessary.

4. The proposed treatment process will effectively produce an effluent with less than 20mg/l TSS. This concentration should not cause an excessive build up of bottom sediment in Red Oak Creek.

5. Chlorination will be included to disinfect the effluent before discharging it to the stream. In order to protect the stream's recreational value, tests should be conducted during plant start up to determine the best chlorine residual to maximize coliform reduction while minimizing the effect of chlorine on aquatic organisms in the receiving stream.

c. The nutrients in the plant effluent will stimulate the growth of additional plants and aquatic organisms in and along the stream. The sudden cut-off of this nutrient source could, but is not expected to, result in the destruction of a large portion of these plants and organisms. The sudden presence of large quantities of decaying matter could seriously degrade the stream. This problem can be avoided by grandually reducing the volume of plant effluent over a period of time. The TRA interceptor is expected to connect to the Red Oak system at the head end of the treatment plant. This will facilitate a phased shutdown of the plant. The need for a phased shutdown must be determined at the time plans for the TRA connection are finalized. In view of the available data, a phased shutdown is not expected in Red Oak.

In considering the TRA connection, no data is presently available to aid in determining what effect the removal of approximately 100,000 gallons of water per day from the Red Oak Creek basin will have on the ecology of the area. A geological report states that the City's potable water comes from two wells penetrating the Woodbine Formation (1000 feet deep). This strata is overlain by a layer of Austin Chalk which is practically impervious. The Woodbine aquifer is recharged through an outcropping of the formation west of Ellis County. From this information it is evident that the transfer of flow to the TRA system will not affect aquifer recharge.

Ground water studies in the Red Oak area do not indicate

the percentage of creek flow contributed by the present subsurface disposal system. Since all drainage from the City carries to Red Oak Creek, it is assumed that the TRA connection will effect a slight decrease in stream flow. An inspection of the stream above and below Red Oak found no apparent difference in flows. Based on these observed flow volumes, no significant impact is expected due to the division of flow from the basin.

IV. Alternatives to the Proposed Action

The following alternatives were considered.

a. Grant rejection. Should Federal grant conditions significantly raise the cost of the proposed project, the City of Red Oak may reject the Federal grant offer and finance the project through other means. In this way a possible cost savings to the City may result. Under this plan, the City may elect to construct the minimum plant required to produce 20-20 standard effluent. For this alternative it will be assumed that the City will construct the facilities as proposed in the grant application. Exhibit No. 6 shows a cost comparison of the alternatives proposed here, and it indicates that alternative a, the proposed action, is the least expensive.

b. Provide the facilities of alternative (a) with advanced waste treatment facilities to supplement effective secondary treatment. This advanced waste treatment may be nothing more than the addition of final filtration or chemical treatment to produce a better quality effluent. As indicated

previously, a detailed study of the effect of the effluent upon the stream is required to determine how extensive advanced waste treatment must be in order to produce an effluent of accepetable quality. This determination of degree of treatment required must be made based on the data gathered by the Texas Water Quality Board monitoring program.

c. Construct an interceptor to transport wastewater to the Trinity River Authority's regional treatment facility. This alternative represents the ideal solution. It combines acceptable waste treatment available at the TRA's regional plant, with a plan that would be acceptable to all parties from an ecological point of view. Unfortunately, at the present time, the TRA's system has not reached a point close enough to Red Oak to permit a financially feasible connection. Meetings held with representatives of TRA indicate that an expansion of this system is planned for 1978, and for this reason a grant condition requires connection to this system as

soon as it becomes financially practical. Based on this future connection it is felt that the treatment facilities within the city of Red Oak proposed for the immediate future represent only an interim solution to the overall problem; therefore, an extensive treatment plant is not considered practical since the cost of construction would be an irretrievable outlay on the part of the city.

d. Total retention ponds sufficiently large to preclude any effluent discharge to any stream. This proposal would be acceptable to the downstream landowners and to EPA, since no stream pollution would result if this proposal were implemented. Unfortunately, the cost of such a facility would be prohibitive since approximately 45 acres of land would be required for ponds. This is a result of the very low net evaporation rate in this part of the country (about 28.7 in./yr.).

e. Irrigate a privately owned golf course with the treated effluent, thus precluding discharge to a receiving stream. This alternative also meets EPA's requirements; i.e., total retention or reuse. It is, therefore, an acceptable interim solution to the problem.

As mentioned previously, a more detailed study of this proposal has been completed by EPA and the consulting engineers and it has been found that the revised costs of this proposal may be prohibitive to the city. The original estimate differs from the revised estimate in three specific areas; first, the original estimate covered a basic irrigation system employing movable plastic hoses whenever possible; second, the original estimate

did not include an automated control system to meet the Health Department's ban on day time irrigation; and third, the original system did not include the extensive safety features that are required by the Texas State Department of Health. Such features include valves which prevent discharge by unauthorized persons. The revised estimate is given in Exhibit No. 7.

The proposed future TRA connection would result in the closing of the Red Oak plant and the termination of irrigation with treated effluent. The value of any unsalvageable material used in the holding pond, pump station, and plant-to-golf course force main would represent an irretrievable loss to the city.

A survey of the soil and water characteristics of the area has disclosed that the extended use of effluent as supplemental irrigation water may have a harmful effect on the soil. The city of Red Oak presently obtains its potable water from two nearby wells. These wells penetrate to a depth of approximately 1,000 feet and extend into the water bearing Woodbine formation. This formation is comprised of sandstone interbedded with shale and sandy shale. An analysis of samples taken from these wells is presented in Exhibit No. 8. It indicates a high sodium concentration and high specific conductance while the calcium and magnesium concentrations are very low. These factors produce a high sodium adsorption ratio (SAR).

Analysis of the upper layers of soil indicates a high concentration of calcareous clay. The Texas Water Development Board Report Number 62, Ground Water Resources of Ellis County, Texas, is the source of this soil and water analysis data. The report also points out that, when soil with

a high calcium content is irrigated for extended periods with water having a high SAR, sodium replaces calcium in the clay. This phenomenon results in soil deflocculation producing a soil that is relatively impermeable to water. This soil may be harmful to vegetation that is sensitive to low soil water concentrations. Exhibit No. 9 is a table reprinted from the report and shows the suggested limits for SAR and salinity in supplemental irrigation water. It can be seen that all Woodbine sources are unacceptable for extended irrigation. This report indicates that the average 35-inch rainfall is the only acceptable source of irrigation water available. Any contract between the golf course owner and the city will probably include a clause which permits the owner to discontinue irrigation with the effluent, if such action proves harmful to the golf course vegetation. If the owner took this action, the city would be forced to discharge into Red Oak Creek until such time as another alternative could be implemented.

f. Haul the wastes by truck to a regional treatment facility. This would have the effect of meeting all the requirements of EPA, the downstream landowners, and the city of Red Oak from an ecological standpoint. Unfortunately, this alternative would be cost prohibitive in that the trucks would be low in initial cost but would be high in operating cost and therefore, any initial savings would be quickly negated by the operation and maintenance costs of such a system. In addition, spills or leaks from the truck would be a source of odor nuisances to the people along the truck's route.

g. Discharge to a stream with less aesthetic value. This proposal would, in effect, relocate the problem rather than solve it. While this may not generate objections from downstream landowners, it will still have the same ecological and aesthetic value on the stream while increasing the cost of transporting the effluent to the second stream.

h. A no action concept of continued use of septic tanks. This alternative would satisfy the requirements of the downstream landowners in that no treated effluent would be discharged to the stream. However, an increased use of septic tanks within the area would increase the amount of sewage seeping into the stream and eventually aesthetically undesirable changes would take place. The potentially serious health hazards present within the City of Red Oak as a result of the septic tank seepage is the reason for rejecting this alternative.

Based on all the data available, the proposed project represents the optimum alternative to the problems of sewage treatment within the City of Red Oak, Texas. Adoption of the proposal would create an aesthetically acceptable condition within the City, while producing an effluent meeting the Texas Water Quality Board 20-20 standards. A monitoring program by the Texas Water Quality Board and by the City of Red Oak to study the effect of the effluent upon Red Oak Creek will aid in determining the exact degree of treatment required to produce a non-degrading effluent. While this may not, in effect, resolve all of the objections raised by the downstream landowners, it would serve as a temporary solution to the problem until such

time as the city is financially capable of constructing a connecting line to the Trinity River Authority's Regional system.

V. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Adoption of the proposal will enhance the environment for future generations by eliminating the danger of septic tank seepage within the city of Red Oak. The proposed system will improve the health conditions of the present and future residents of the city. The creek discharge is not expected to have an adverse effect on the environment. As an interim facility, the discharge will have no long range effect on the stream's ecosystem and no significant changes instream productivity are anticipated.

The overall effect of the project should be the enhancement of long-term productivity. The collection system should increase land values, accelerate land development, and increase population growth. These facts should greatly outweigh the short term, adverse effects the treatment plant will have on nearby land pending the TRA connection.

The costs for constructing the collection systems will be shared by the present and future residents of the city. The treatment plant costs will also be shared by the residents but the plant may be closed (TRA connection) before the bonds are retired. This will impose the responsibility for these bonds on residents who did not directly benefit from the plant's presence. It may be reasoned, however, that these residents are contributing to the healthy environment that they found in Red Oak when they arrived.

The potentially serious threat to the health and welfare of the residents created by the existing treatment facilities justifies immediate action

on the proposal.

VI. Irreversible and Irretrievable Commitments of Resources Which Would Be Involved in the Proposed Action Should It Be Implemented

No phase of the proposed project appears to be irreversible. Complete land restoration at the plant site would be possible by the removal of any structures present. The effluent is expected to have a negligible effect on Red Oak Creek; thus, any change that did occur would be reversible through normal biological recovery. Such recovery would begin following the closing of the treatment plant.

The treatment facilities would represent an irretrivable commitment of resources since the construction materials would be unsalvageable. In addition, the cost of construction and some of the plant land value would represent an irretrievable commitment of funds.

VII. A Discussion of Problems and Objections Raised by Other Federal, State, and local Agencies and by Private Organizations and Individuals in the Review Process.

The following summary of comments from downstream landowners was received during the review process leading up to this Environmental Impact Statement.

COMMENT 1 - The discharge represents a public health hazard to the people who use the creek for swimming, fishing, picnicking, hunting, and camping.

RESPONSE - As stated in the report, the effluent is not expected to degrade the stream and disinfection by chlorination will reduce any health hazard.

COMMENT 2 - The value of property located along the creek will diminish if the stream is used to convey treated sewage from the City.

RESPONSE - The effluent is not expected to degrade the stream and, therefore, should not effect land values. Should some value decrease result, the TRA connection will negate it and return the land to its normal value. Stream degradation due to uncontrolled discharges and non-point sources is a more realistic problem.

COMMENT 3 - Potable water lines cross the creek at several locations downstream from the point of discharge. If a break occurred in one of these lines, the water could become contaminated with the sewage and harm those ingesting the water. Several wells, located in the creek bottomland, might likewise become contaminated.

RESPONE - These wells and water lines should not be adversely affected by the effluent.

COMMENT 4 - Milk from cattle that drink the contaminated creek water will not be saleable.

RESPONSE - Comments from expertise within the reviewing agencies will be included in the Final Impact Statement.

COMMENT 5 - The sewage will be harmful to fish in the creek.

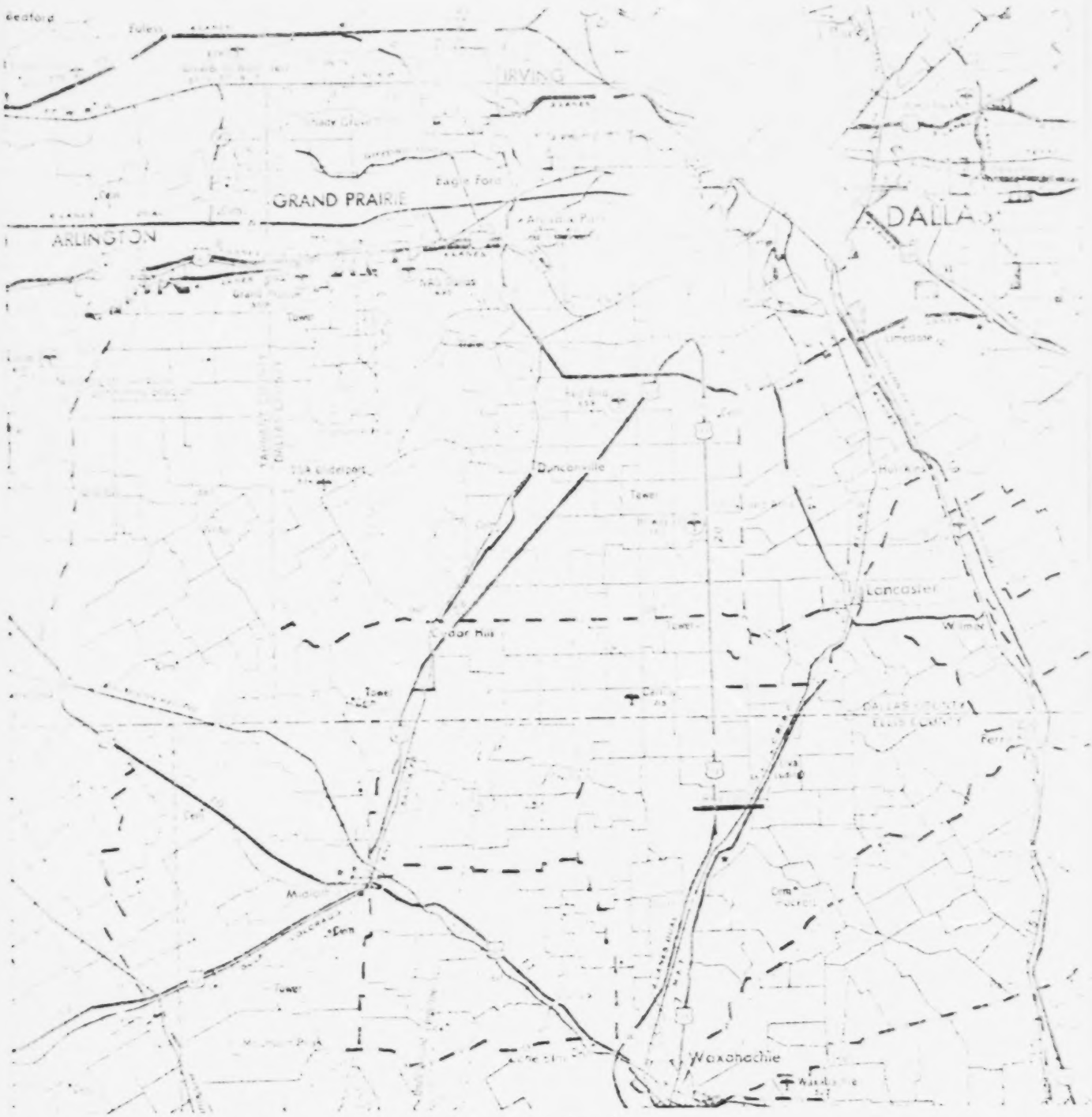
RESPONSE - The effluent nutrients will increase the stream's productivity slightly and a minimal increase in the size and number of fish present should result.

COMMENT 6 - The creek water would be detrimental to crops if it was used for irrigation.

RESPONSE - The Texas State Department of Health's policy on crop irrigation restricts the use of plant effluent on food crops that may be consumed in a raw state. Since cotton and sorghum are the leading area crops, effluent irrigation is not expected to be a problem.

COMMENT 7 - The towns of Ferris, Forreston, and Lancaster have the same treatment system as Red Oak has proposed and the odor and pollution downstream is objectionable.

RESPONSE - A review of these facilities is presently underway and a report of the findings will be included in the Final Impact Statement.



CONTOUR INTERVAL 50 FEET

TRANSVERSE MERCATOR PROJECTION

Exhibit No. 1

NOT REPRODUCIBLE

1960 MAGNETIC DECLINATION FOR THIS SHEET VARIES FROM 8°30' EASTERLY FOR THE CENTER OF THE WEST EDGE TO 8°45' EASTERLY FOR THE CENTER OF THE EAST EDGE. MEAN ANNUAL CHANGE IS 0°02' WESTERLY

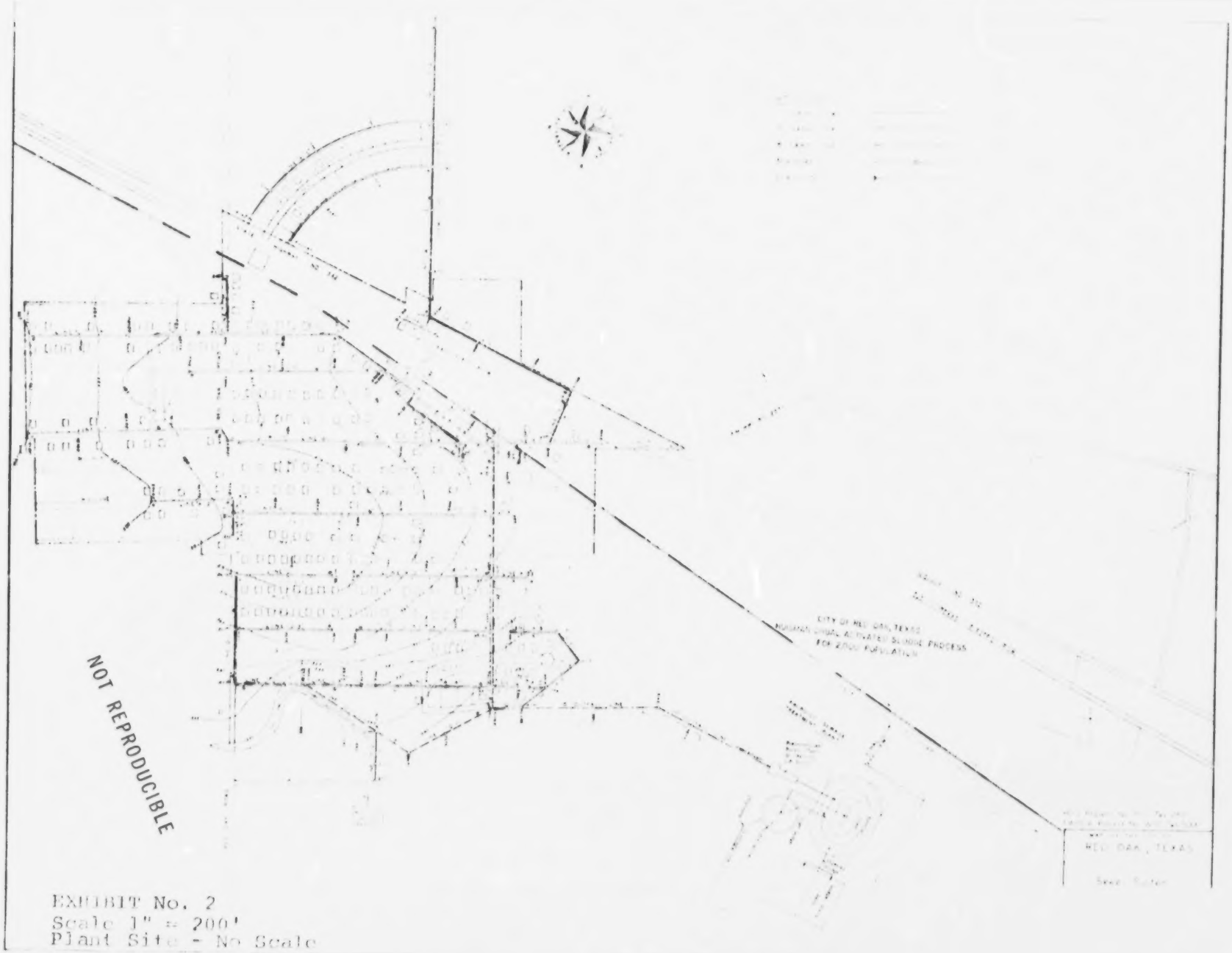


EXHIBIT No. 2
Scale 1" = 200'
Plant Site - No Scale

Exhibit No. 3

Red Oak Creek

Water Quality Data *

Sample Location	Below Cedar Hill[1]	Between Red Oak and Rockett (Feed Lot)[2]
Date	4/30/69	9/29/70
Time	1:00 p.m.	10:45 a.m.
Temp ^{o}F	58	65
Flow (gpd)	150,000	200,000
pH	7.7	8.1
DO mg/l	7.0	4.0
BOD mg/l	2.0	3.5
Ammonia N mg/l	Negligible	< 1
Conductivity micromhos/cm	672	465
TSS mg/l	<10	23
COD mg/l	--	20
TOD mg/l	--	<20
TC mg/l	--	50
TOC mg/l	--	25

* Supplied by TWQB
1 Cedar Hill Plant in operation
2 Cedar Hill Plant closed

PERMIT NO. 11110

PAGE NO. 1

TEXAS WATER QUALITY BOARD

1100 LAVACA STREET
AUSTIN, TEXAS 78701

PERMIT to dispose of wastes under provisions of Article 7621d-1, Vernon's Texas Civil Statutes

I. Name of Permittee

1. Name: City of Red Oak
2. Address: P. O. Box 393
3. City: Red Oak, Texas 75151

II. Type of Permit: Regular XXX Amended

III. Nature of Business Producing Waste
Municipal Sewerage System

IV. General Description and Location of Waste Disposal System

Description: Oxidation ditch including bar screen, Parshall flume and two 1.15 acre stabilization ponds.

Location: Approximately ½ mile south of Red Oak, Texas and immediately west of M.K. & T. Railroad which point is west of cemetery on State Highway 342.

V. Conditions of the Permit

1. Character, volume and disposal area(s) or point(s) of discharge authorized under this Permit. The conditions on the reverse side are a part of this Permit and apply for all purposes

Character: Treated municipal sewage effluent.

Volume: Not to exceed an average of 100,000 gallons per day;
Not to exceed a maximum of 250,000 gallons per day;
Not to exceed a maximum of 145 gallons per minute.

Quality:

Item	NOT TO EXCEED		
	Monthly Average	24 hr. daily Composite	Individual Sample
B.O.D.	20 mg/l	25 mg/l	30 mg/l

Point of Discharge: Into an unnamed branch adjacent to the plant site in Ellis County, Texas; thence into Red Oak Creek; thence into the Trinity River in the Trinity River Basin.

NOT REPRODUCIBLE

2. Special Provisions
SEE ATTACHMENT

3. This permit becomes effective August 28, 1970 and is valid until amended or revoked by the Board.

ISSUED this 28th day of August, 1970

J. P. Folk
Executive Director

For the Board

Standard Provisions

(a) This permit is granted in accordance with the Texas Water Quality Act of 1967 (Article 7621d-1, V.T.C.S.) and the rules authorized by the Board, and is granted subject to the rules of the Board, the laws of the State of Texas, and further orders of the Board issued in accordance with said rules and laws.

(b) In the event the permittee discharges wastes which exceed the quantity or quality authorized by this permit, the permittee shall give immediate notice to the office of the Board.

(c) Acceptance of this permit constitutes an acknowledgment and agreement that the permittee will comply with all the terms, provisions, conditions, limitations and restrictions embodied in the permit and with the rules of the Board, the laws of the State of Texas, and further orders of the Board. Such agreement is a condition precedent to the granting of this permit.

(d) This permit cannot be transferred without prior notification to the Board.

(e) This permit is issued subject to the terms of Section 11(*f*), Article 7621d-1, V.T.C.S., which reads in part as follows:

> "The permittee may be required, for good cause, from time to time, after notice to the permittee and after public hearing initiated by the Board, to conform to new or additional conditions and terms required by the Board following such hearing. The Board shall allow the permittee a reasonable time to conform to such new or additional terms and conditions; provided, however, that upon application of the permittee, the Board, in its discretion, may grant the permittee an additional period of time within which to conform to such new or additional terms and conditions. Such permit or amended permit shall never become a vested right in the permittee, and it may be revoked or suspended for good cause shown, after notice to the permittee and after public hearing initiated by the Board, in the event of the permittee's failure to comply with the terms and conditions of such permit as issued or as amended."

(*f*) The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.

(g) The provisions of this paragraph (g) of the Standard Provisions of this permit apply only to drinking water supply systems and sewage disposal systems designed for public use as contemplated in Section 16, Article 4477-1, V.T.C.S. There may be substituted for the foregoing features of the plant other mechanical equipment, or treatment methods on prior approval of the State Health Department, provided such substitutions do not result in a reduction of the efficiency and operating safety of the plant nor result in the discharge of a lesser quality or effluent than that authorized under the permit.

NOT REPRODUCIBLE

FILE COPY
DEC 20 1970
TEXAS WATER QUALITY BOARD

SPECIAL PROVISIONS:

This order is granted subject to the policy of the Board to encourage the development of area-wide waste collection, treatment and disposal systems. The Board reserves the right to amend this order in accordance with applicable procedural requirements to require the system covered by this order to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this order in any other particular to effectuate the Board's policy. Such amendments may be made when, in the judgment of the Board, the changes required thereby are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.

These public sewerage facilities shall be operated and maintained by a sewage plant operator holding a valid certificate of competency issued under the direction of the Texas State Health Department as required by Section 20 (a) of Article 4477-1, Vernon's Texas Civil Statutes.

The City shall comply with the provisions of Board Order No. 69-1219-1 relative to monitoring and reporting data on effluent described in "Conditions of the Waste Control Order".

NOT REPRODUCIBLE

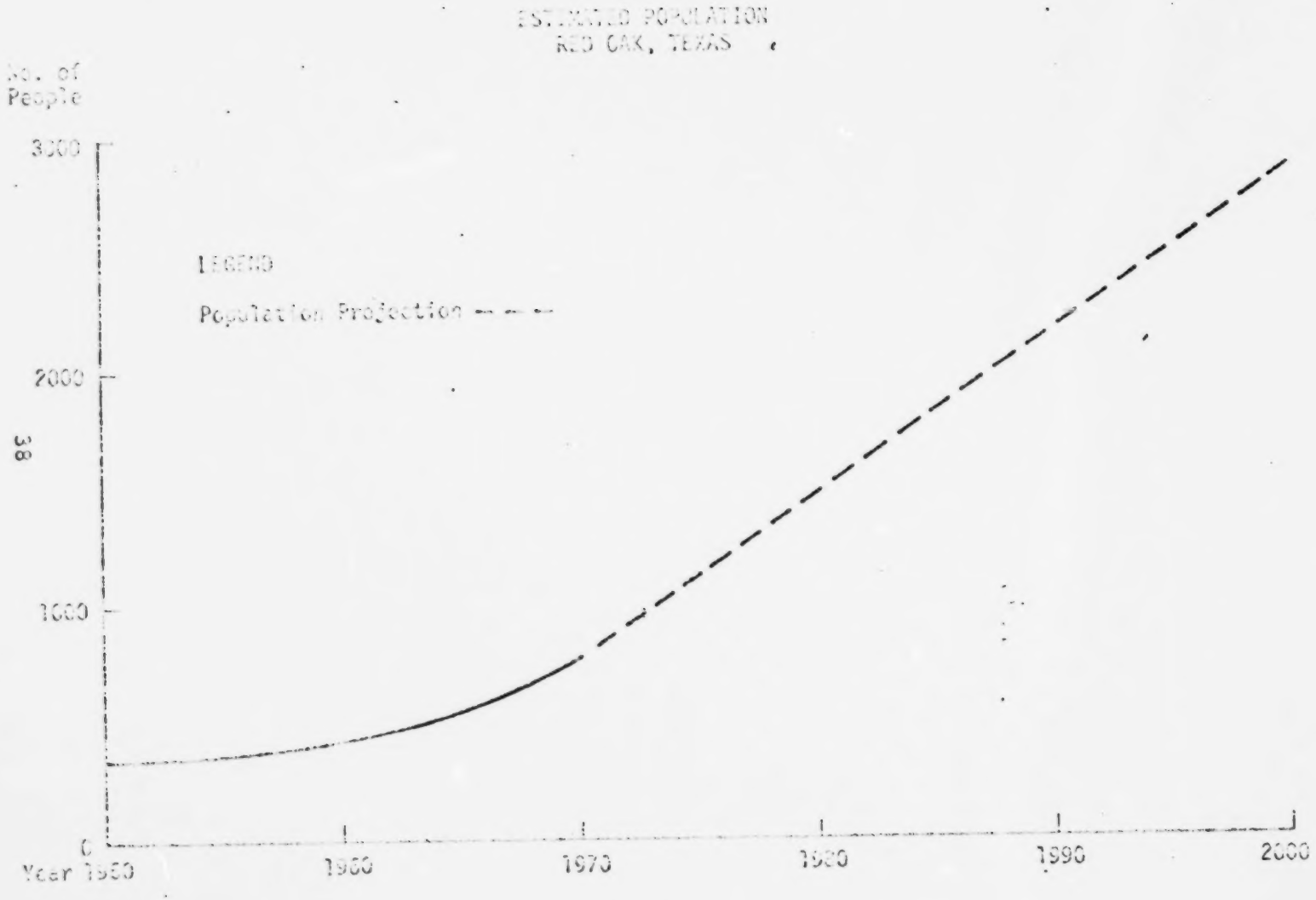

ESTIMATED POPULATION
RED OAK, TEXAS
No. of People
3000
2000
1000
0
LEGEND
Population Projection
Year 1960
1960
1970
1980
1990
2000

Exhibit No. 5

Exhibit No. 6

Summary of Costs

	Total Project Cost[1] ($)	PL 660 Grant ($)	Cost to Red Oak ($)	O&M Costs ($/1000 gallon)
1. Proposed Project *	400,000	119,000	281,000	10
2. A.W.T.	510,000	175,000	335,000	15 to 20
3. TRA Regional System	635,000	206,000	429,000	31
4. Total Retention Ponds	808,000	197,000	611,000	negligible
5. Irrigate Golf Course with effluent	534,000	194,000	340,000	10
6. Hauling to TRA's STP	792,000	33,000	759,000	--

[1]Includes costs for treatment facilities and conveyance and collection system.

* See Exhibit No. 6

COST ESTIMATE
PROPOSED PROJECT

		Total	Eligible
1.	Construction:		
	(a) Lateral sewer lines	$113,000	0
	(b) Outfall sewer lines	43,000	43,000
	(c) Sewage treatment plant (2,000 PE)	125,000	125,000
	(d) Subtotal for Construction	$281,000	$168,000
2.	Technical Services:		
	(a) Engineering fee	25,000	17,000
	(b) Inspection fee	13,000	8,000
	(c) O & M manual	2,000	2,000
	(d) Subtotal for Technical Services	38,000	27,000
3.	Legal & Fiscal Fees	$ 9,000	5,600
4.	Administrative	1,000	700
5.	Government Field Expense	2,200	0
6.	Site	40,000	0
7.	Contingency	26,800	15,200
8.	Totals	400,000	216,500

0.55 x $216,500 = $119,075 Grant Offer Possible

EXHIBIT No. 6A

WISENBAKER, FIX, & ASSOCIATES
Consulting Engineers
Tyler, Texas
December 14, 1971

REVISED PROJECT COST ESTIMATE FOR SEWER SYSTEM FOR THE CITY OF RED OAK, TEXAS*

EPA Project No. WPC-Tex-533
HUD Project No. PFL-Tex-260

ITEM	TOTAL PROJECT	PORTION ELIGIBLE FOR PL 660 GRANT
1. Construction:		
(a) Lateral sewer lines	$ 113,000	0
(b) Outfall sewer lines	43,000	$ 43,000
(c) Sewage treatment plant (2,000 GPD)	125,000	125,000
(d) Effluent irrigation system	126,000	126,000
(e) Subtotal for Construction	$ 407,000	$ 294,000
2. Technical Services:		
(a) Engineering fee	34,600	25,000
(b) Inspection fee	15,000	10,500
(c) O & M manual	2,000	2,000
(d) Subtotal for Technical Services	$ 51,600	$ 37,500
3. Legal & Fiscal Fees	8,000	5,600
4. Administrative	1,000	700
5. Government Field Expense	2,200	0
6. Site	40,000	0
7. Contingency	24,200	15,200
8. TOTALS	$ 534,000	$ 353,000

Method of Financing:	
PL 660 Grant (55% x $353,000)	$ 194,000
State Loan (25% x $353,000)	88,000
HUD Loan	150,000
Additional Funds Required by City	102,000
TOTAL ESTIMATED PROJECT COST	$ 534,000

*Includes effluent irrigation system.

Exhibit No. 7

DEC 16 1971

WISENBAKER, FIX, & ASSOCIATES
Consulting Engineers
Tyler, Texas
December 14, 1971

ESTIMATED COST OF IRRIGATION SYSTEM

FOR RED OAK SEWAGE TREATMENT

PLANT EFFLUENT

EPA Project No. WPC-Tex-533

1. Pumping Station:		
3 - Turbine pumps (360 GPM @ 327' TDH)		
1 - Turbine pump (100 GPM @ 231' TDH)		
1 - 300 Gallon steel pressure tank		
1 - Electric panel w/switches		
1 - "Nu-Matic" pressure tank control		
1 - 3" Pressure relief switch & by-pass valve		
1 - 200 amp Disconnect switch		
1 - Flume, header, welded fittings, valves & piping		
1 - Metal pump station building w/conc. slab		
Lump Sum for Item No. 1		$ 18,816
2. Irrigation Piping: (160 psi - rubber gasket joints)		
2,000' - 8" PVC		
6,200' - 6" PVC		
5,400' - 4" PVC		
4,300' - 3" PVC		
4,000' - 2½" PVC		
8,800' - 2" PVC		
Lump Sum for PVC Pipe	$ 51,500	
4" Bore under railroad	750	
Cast iron & PVC fittings	2,610	
320' - 4" Aluminum irrigation pipe w/valve & fittings	1,756	
Subtotal for Item No. 2		$ 56,616
3. Irrigation Sprinklers:		
107 - #13 Aqua Dial sprinkler		
6 - #14 Aqua Dial sprinkler		
160 - #15 Aqua Dial sprinkler		
12 - Aqua Dial controller		
160 - #5110 Aqua Dial valves (1½")		
113 - #5110 Aqua Dial valves (1")		
2 - #5181 Aqua Dial check valves (3/8")		
19 - #44 Aqua Dial quick coupling valve (1")		
6 - #44C-3/4" Aqua Dial double-keyed couplers (1" x 3/4")		
6 - #72 Aqua Dial brass hole ells (1" x 3/4")		
Lump Sum for Item No. 3		$ 31,935
4. Control Tubing:		
350,000 - PVC Control tubing (¼")		

DEC 16 1971

Estimated Cost of Irrigation System
For Red Oak Sewage Treatment
Plant Effluent (Continued)

4. Control Tubing: (Continued)		
½" Brass compression fittings & controller filters		
Lump Sum for Item No. 4		$ 9,173
5. Miscellaneous Items:		
Swing joints for sprinkler heads	$ 2,460	
Gate valves (misc. sizes)	1,252	
Steel pipe & bridging for creek crossing	1,800	
Subtotal for Item No. 5		$ 5,512
Estimated Construction Cost		$ 122,052
Estimated Sales Tax (on material only)		3,850
Total Estimated Construction Cost		$ 125,902

SUMMARY OF PROJECT COST

1. Construction Contract		$ 125,902
2. Technical Services:		
(a) Engineering fee	$11,000	
(b) Inspection fee	3,000	
(c) Subtotal		14,000
3. Legal & Fiscal		2,500
4. Administrative		500
5. Contingency		7,098
6. Total Estimated Project Cost		$ 150,000

Method of Financing:

(a) PL 660 Grant (55% of $150,000)	= $ 82,500
(b) State Loan (25% of $150,000)	= 37,500
(c) City Funds from other sources (20% of $150,000)	= 30,000
(d) Total Project Cost	= $150,000

DEC 16 1971

Exhibit No. 8

Well Water Analysis

Well No.	1	2
Date	6/9/65	9/24/62
Ca mg/l	3	2
Mg mg/l	1.8	1
Na mg/l	496	460
HCO_3 mg/l	604	608
Ionic Concentration %Na	98	98
Sodium Adsorption Ratio	56	55
Specific Conductivity	2180	2145

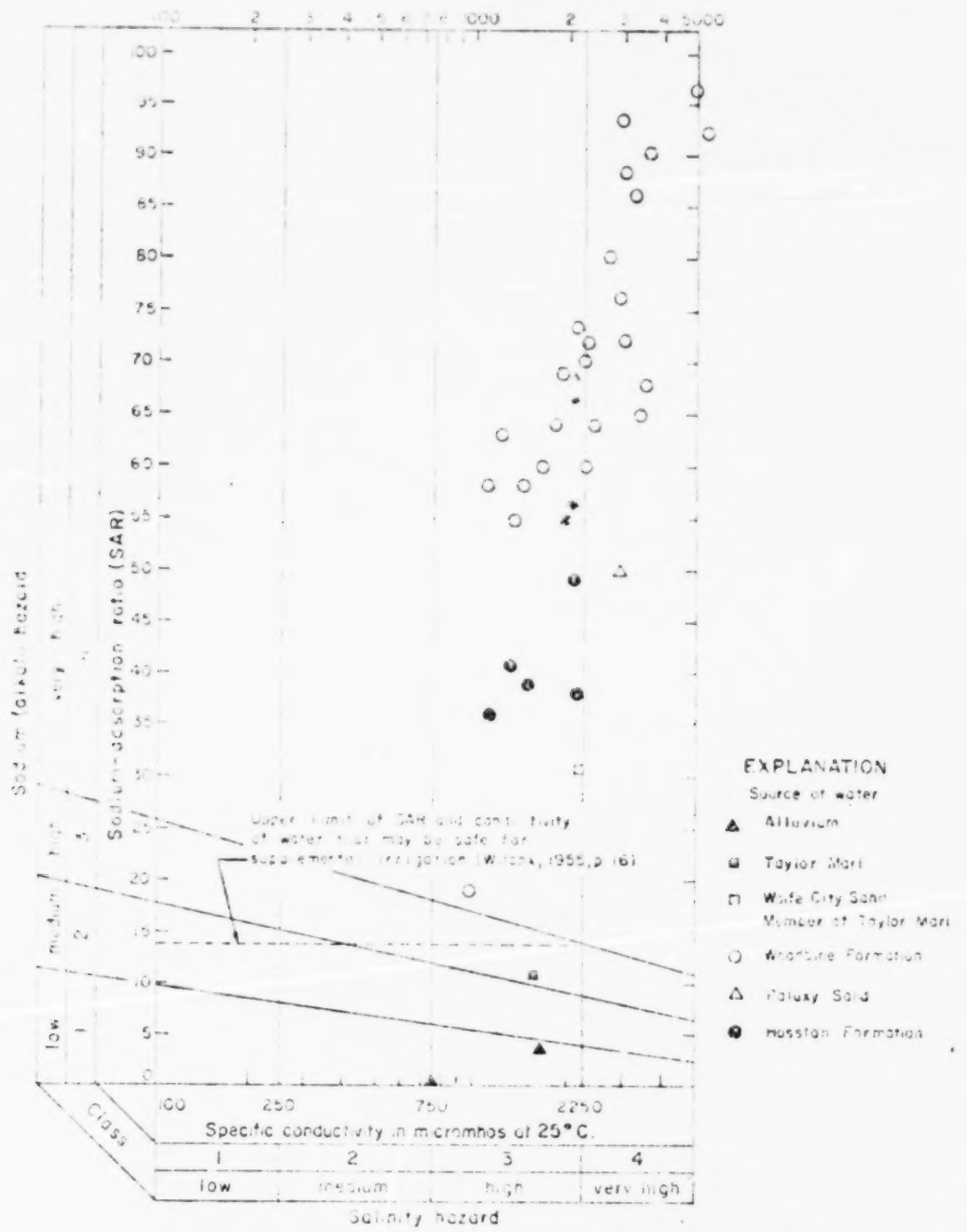


Exhibit No. 9

Classification of Irrigation Waters

U. S. Geological Survey in cooperation with the Texas Water Development Board

HEARING COMMISSION REPORT

SYNOPSIS

I. Applicant

A. Name: City of Red Oak
B. P. O. Box 393, Red Oak, Texas

II. Discharge

A. Volume: An average of 100,000 gallons per day
B. Type: Treated domestic sewage
C. Course: Into an unnamed tributary, thence to Red Oak Creek, thence to the Trinity River in the Trinity River Basin.

III. Hearing

A. Date: July 14, 1970
B. Location: Austin, Texas
C. Hearing Commission: Lee H. Mathews, Presiding Officer, John M. Johnston, Technical Services
D. Appearances: See attached attendance sheet

IV. Findings

A. The need for a sewerage system for the City of Red Oak is acute; presently inadequate septic tanks pose a potentially serious health and pollution problem.
B. The City is financially unable to join the Tenmile Regional Sewerage System at the present; the City's proposal for a local system is the more desirable alternative.
C. Although some recreational and other uses are made of the receiving waters (Red Oak Creek), an effluent conforming to the conditions and terms of the proposed Waste Control Order should not adversely affect those uses.

V. Recommendations

A. Waste Control Order Granted: Yes
B. Effective Date: August 28, 1970
C. Status: Final Approval
D. Special Provisions:
   1. Area-wide treatment clause
   2. Certified operator clause
   3. Self-reporting clause

NOT REPRODUCIBLE

ATTENDANCE LIST - CITY OF RED OAK

Public Hearing, July 14, 1970

1. Proponents:

Robert E. Fix, P. E.
Ronnie B. Johnson, City Attorney
Lester Watkins, Builder
Don Shields, Supt. of Schools
A. Hardy Eubanks III, Financial Advisor
J. M. Hart, Mayor
Glendon E. Haney, City Councilman

2. Opponents:

James K. Presnal, Attorney
Horace E. Carter
W. A. Fuller
C. E. Spain, Jr.
LaVoy Strain
T. M. Harper
S. L. Adais
Charles L. Prude
Pete Clopton
Lu Prude

3. Observer:

Sam Kinch, Jr., Reporter, The Dallas Morning News

NOT REPRODUCIBLE

SUMMARY OF THE EVIDENCE

The City of Red Oak, Texas has made application before the Texas Water Quality Board for an initial Waste Control Order authorizing the discharge of treated domestic sewage from facilities located approximately ½ mile south of the city. A public hearing was held on July 14, 1970 in Austin, Texas during which evidence was received pertaining to the application. The applicant was represented by several city officials; numerous landowners and other interested parties appeared in protest.

The applicant has submitted an affidavit from the publisher of The Waxahachie Daily Light attesting that notice of the public hearing was published within the statutorily prescribed time period. Notice was also given to interested parties in accordance with established policy of the Texas Water Quality Board.

City officials and Mr. Robert Fix, Consulting Engineer, testified to the following:

1. The need for a sewerage system in Red Oak is critical. The present population (about 750) is now served by septic tanks which for the most part do not function properly. Overflows and seepage are common; raw sewage often collects in ditches and holes throughout the city. Much of this seepage finally collects in Red Oak Creek.
   Commissioners Note: A letter received from Dr. David Leslie of the Ellis County Health Department recommends approval of a sewerage system for Red Oak because of the serious septic tanks problem in the city.

2. The City proposes to install treatment facilities comprised of an oxidation ditch, bar screen, and two stabilization ponds. The plant will be designed to serve 1,000 persons; a flow measuring device will be installed. The State Health Department has approved the plans and specifications for the proposed facilities.

3. Red Oak Creek, the receiving stream for the effluent, contains water most of the year - some recreational use has been noted. The creek contains some septic tank discharge and treated sewage from at least one other city: Cedar Hill
   Examiner's Note: It has been reported that Cedar Hill will eventually join the Tenmile Regional Sewerage System and thus eliminate its discharge into Red Oak Creek.

4. The Trinity River Authority has been consulted about a possible tie-in to the Regional System. In 1968 the Authority informed city officials that the estimated cost of connection was $220,000.00; this cost to cover the construction of the necessary outfall lines and a lift station. Other projected costs would raise the figure to $411,000.00 total cost (based on 1968 cost figures). If, however, the City builds its own plant and system of lines, total cost would be about $241,000.00; thus the cost to the City of a tie-on with the Tenmile System is 71% higher than the City's proposal. In terms of anticipated water and sewer rates, the City's plan embodied in this application will result in about a $84.00 per year charge per person for water and sewer services; a contract with the Trinity River Authority would increase these rates to approximately $144.00 per year. (See addendum for a breakdown of anticipated costs.)

   The above computations do not take into consideration any increases in estimated construction costs of the Tenmile outfall lines and pump station since 1968 nor the costs of right-of-ways for the pump station and lines. A requirement by the Board that the City join the Tenmile system would necessitate the resubmission of the City's approved Department of Housing and Urban Development loan agreement, and the resubmission of the City's request for a PL 660 Grant. Due to the urgency of the City's sewage problem, the additional delay that the resubmissions would entail would not be in the best interests of Red Oak.

Protestants owning land in the vicinity of the proposed treatment plant and Red Oak Creek presented testimony that can be summarized as follows:

1. Red Oak Creek is a source of recreation for the area. Uses include swimming, picnicking, and fishing; additionally, children often play in and around the creek.

2. Discharging effluent into the creek will cause health and odor problems, especially in the dry weather months when water pools in the stream bed and stagnates. In wet weather, the effluent may contribute to overflow problems.

NOT REPRODUCIBLE

3. The necessity of preserving Red Oak Creek as an important natural resource for the area should override the cost consideration of connecting to the Tenmile Regional System.

4. The value of property located along the creek will diminish if the stream is used to convey treated sewage from the city.

A letter of protest was received from Vernon C. Coffey who feels that water contaminated with treated sewage would harm cattle that water at the creek and destroy other domestic uses of the water. The writer urges a tie-on to the regional sewerage system.

A petition signed by over 160 residents of the surrounding area was presented to the Hearing Commission. These residents protest the use of Red Oak Creek by the City for sewage discharge because (a) sewage discharges are a continuing nuisance; (b) the value of adjacent property will be reduced; (c) sewage effluent will contaminate Red Oak Creek; (d) springs feeding the creek will be contaminated; (e) the adulteration of the creek's waters will restrict the normal uses of the stream.

Governmental units that have commented on this application include the North Central Texas Council of Governments, the Commissioners Court of Ellis County, and the Texas Parks and Wildlife Department. The NCTCOG recommends that "the proposed project is urgently needed, and it is reasonable to expect that it will be consistent with area-wide comprehensive planning and functional programming." The Ellis County Commissioners Court adopted a resolution at its June 23, 1970 meeting opposing the granting of all applications that propose to discharge waste into Bear Creek or Red Oak Creek. The resolution recommends that such applicants be required to connect to the Trinity River Authority's sewerage system.

Examiner's Note: A letter written by Hon. Milton Hartsfield, County Judge of Ellis County and received after the public hearing states that the Commissioners Court "did not have in consideration" the Red Oak treatment plant when the resolution was passed. Apparently, then, the Commissioners Court would not object to the building of the City's plant.)

The Parks and Wildlife Department will offer no objection to the application provided the applied for parameter for suspended solids (25 mg/l monthly average, 30 mg/l 24-hour daily composite, 30 mg/l individual sample) can be reduced to normally acceptable limits (20, 25 and 30 mg/l respectively).

NOT REPRODUCIBLE

Findings and Recommendations

The Hearing Commission makes the following findings:

1. Septic tanks presently serving the City of Red Oak are inadequate; they pose a potentially serious pollution and health hazard to the community. Septic tank seepage is currently degrading the quality of water in Red Oak Creek and threatening the water supply in the City.

2. It is economically impractical to require the City of Red Oak to attempt to contract with the Trinity River Authority's Tenmile Creek Sewerage System. A balancing of the interests involved indicates that the City should not have to bear the economic hardship and untimely delays in construction that would be entailed by a tie-in to a regional system. Representatives of the Trinity River have recommended that the City proceed with its plans to build a separate treatment plant; eventually the City can join the regional system when economics and population growth so indicate.

3. A properly constructed and maintained treatment plant of the type proposed by the applicant should not adversely affect normal uses of Red Oak Creek. Such a plant would eliminate present septic tank seepage into the creek from the City of Red Oak.

In light of the consideration given all the evidence, the Hearing Commission recommends that an initial Waste Control Order be granted in accordance with the terms and conditions of the proposed Waste Control Order attached hereto.

Lee H. Mathews

Lee H. Mathews, Presiding Officer
August 14, 1970

LHM:ha

NOT REPRODUCIBLE

ADDENDUM

ESTIMATED COST OF SEWERAGE SYSTEM FOR CITY OF RED OAK, TEXAS

	Using Local Sewage Plant	Joining 10-Mile Creek Regional System
1. Construction Costs:		
a. Lift Station and line to regional system	-	$ 220,000
b. Sewage Plant	$ 50,000	-
c. Local outfall line	37,168	37,168
d. Lateral sewer lines	85,390	85,390
e. Subtotal	$ 172,558	$342,558
2. Other Project Costs	68,442	68,442
3. Total Estimated Project Cost	$241,000	$411,000

*1966 Estimate by Trinity River Authority based on 8 inch outfall line which would be inadequate in 15 years.

411
241
170

NOT REPRODUCIBLE

NAME: City of Red Oak
ADDRESS: P. O. Box 393
CITY: Red Oak, Texas 75151

TYPE OF WASTE CONTROL ORDER: Regular

NATURE OF BUSINESS PRODUCING WASTE: Municipal sewerage system

GENERAL DESCRIPTION AND LOCATION OF WASTE DISPOSAL SYSTEM:

Description: Oxidation ditch including bar screen, Parshall flume and two 1.15 acre stabilization ponds.

Location: Approximately ½ mile south of Red Oak, Texas and immediately west of M.K. & T, Railroad which point is west of cemetery on State Highway 342.

CONDITIONS OF THE WASTE CONTROL ORDER:

Character: Treated municipal sewage effluent

Volume: Not to exceed an average of 100,000 gallons per day;
Not to exceed a maximum of 250,000 gallons per day;
Not to exceed a maximum of 145 gallons per minute.

Quality:

	NOT TO EXCEED		
Item	Monthly Average	24-hour Daily Composite	Individual Sample
B.O.D.	20 mg/l	25 mg/l	30 mg/l

Point of Discharge: Into an unnamed branch adjacent to the plant site in Ellis County, Texas; thence into Red Oak Creek; thence into the Trinity River in the Trinity River Basin.

SPECIAL PROVISIONS:

This order is granted subject to the policy of the Board to encourage the development of area-wide waste collection, treatment and disposal systems. The Board reserves the right to amend this order in accordance with applicable procedural requirements to require the system covered by this order to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this order in any other particular to effectuate the Board's policy. Such amendments may be made when, in the judgment of the Board, the changes required thereby are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.

These public sewerage facilities shall be operated and maintained by a sewage plant operator holding a valid certificate of competency issued under the direction of the Texas State Health Department as required by Section 20 (a) of Article 4477-1, Vernon's Texas Civil Statutes.

The City shall comply with the provisions of Board Order No. 69-1219-1 relative to monitoring and reporting data on effluent described in "Conditions of the Waste Control Order".

JMJ:ns

NOT REPRODUCIBLE

MISSOURI
Elva
BM 616
Red Oak
Hwy
BM 587.5
47'30"
SCALE 1:24000
1 MILE
7000 FEET
1 KILOMETER
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL
N
NOT REPRODUCIBLE
TEXAS
QUADRANGLE LOCATION

Exhibit No. 12 - A copy of this document was not received in time to be included in the report but will be included in the final report.